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ORIGINAL ARTICLES.

A CASE OF SUPERNUMERARY EYELID.

By J. F. Shoemaker, M.D., and A. Alt, M.D.
ST. LOUIS, MO.

The following case appears to be sufficiently rare to be worth reporting:

Mr. K., aged 26 years, consulted me March 2, 1914, concerning a growth on her left eye, stating that she had always had it, being told by her mother that she was born with it. The patient thought it had grown slightly the past few years, but of this she could not be certain. It gave her no pain, except at times it became irritated from wiping the eye frequently, made necessary by excessive lacrimation. Examination showed a growth situated at the inner canthus in the region of the caruncle, protruding between the lids and extending beyond the surface of the lids about 5 mm. In outline it was irregular. It was attached beneath in the region of the caruncle, but was not attached to the edges of the lids except by a narrow band to the lower lid almost at its junction with the upper, where the skin was continuous from the lid. The punctum and the canaliculus were not involved. The growth was easily removed and the wound healed promptly. Since its removal the edges of the lids are slightly more separated near the inner canthus than naturally. The upper lid appears entirely normal. The lower one has a very small notch in its edge to the temporal side of where the growth was attached to it. Whether this has been caused by the pressure of the growth or whether it is a small congenital coloboma, I am not prepared to say. The specimen was given to Dr. Alt for examination, whose report follows.

MICROSCOPICAL EXAMINATION BY A. ALT, M.D.

When this most interesting specimen reached me, it was a little over a centimeter long and about 5 mm. wide at its thickest portion. (See Fig.)

A section through it in its longest diameter showed it to be very irregular in outline, but in general of semilunar shape ending in a rounded lobule, the part which protruded between the eyelids.

1. Lid portion. 2. Caruncular portion. 3. Meibomian glands. 4. Lacrimal canaliculus; 4a. Blind end of canaliculus. 5. Lacrimal gland. 6. Epithelial cone.

Microscopically the growth is made up of all the elements found in the caruncle and lid, but, particularly in the latter, arranged in an abnormal manner. The posterior broader part chiefly contains the tissues found in the caruncle, the thinner portion those of the eyelid. Thus it appears as if the supernumerary lid was grown out from the caruncle.

The lid portion, which is 6 mm. long, is covered with cutis and bristles with fine and coarse, partly pigmented, eyelashes,

which grow in all directions. Between them are numerous small sebaceous and modified sweat glands, held together by dense connective tissue. Farther back there are a number of atypical glandular structures, which, however, easily recall the arrangement of Meibomian glands, although neither the glandular acini nor the apparent excretory ducts have a continuous lumen. They are mostly solid epithelial structures which show a lumen only here and there. There are also a number of bundles of muscular fibres in this part irregularly distributed among the other structures. Just where the lid portion and the caruncular portion join each other there is an opening into the depth of the tissue, which from the character, arrangement and thickness of its epithelial lining, is easily recognized as a lacrimal canaliculus. Following this up in the different sections it is found to end with blind sac lined with the same epithelium in the depth of the tissue of the lid.

The caruncular portion shows all the elements of the normal caruncle, hair, sebaceous glands and a sweat gland embedded in dense connective tissue, but not arranged in the normal manner. A most peculiar cone of epithelial cells, with its base on the surface, reaches for quite a distance into the depth. The cells of this cone look very much like the cells of a Meibomian gland; there are, however, no glandular acini, neither is there a lumen. Near the base of the growth, where it was cut off, there is in some sections a second such epithelial cone.

I can find no mention of such or even a similar anomaly, and I surely do not dare to offer an explanation of its manner of growth. But, certainly it is a supernumerary eyelid, grown from, upon or out of a somewhat abnormal caruncle.

CORRECTION.

Mr. P. B. Haeber, 69 E. 59th Street, New York, informs us that he is the American publisher of Elliot's book on sclerocorneal trephining. We gladly inform our readers of our mistake. ALT.

REMOVAL OF GLOBE AFTER SCLERO-CORNEAL TREPHINING.*

CLINICAL REPORT AND MICROSCOPICAL FINDINGS.

By John Green, Jr, M.D., and Wm. F. Hardy, M.D.
ST. LOUIS, MO.

Clinical Report.—Mrs. M. L. L., age 59, came under observation January 20, 1911. Ocular history: Smoky vision of the left eye was first observed five years ago. Sight in this eye gradually failed to blindness accompanied by an occasional heavy ache, but no true pain. In the right eye vision has been misty for several months. Right vision +2⊃+.5 ax. 45°=5/8+. Left vision, faint p. l. Ophthalmoscopically, both discs showed typical glaucomatous cups, the right 3 D., the left 6 D. in depth. T.+ both. The right field was markedly contracted nasally, especially in the horizontal meridian. The patient was carried along from January 20, 1911, to July 2, 1913, with no diminution in central vision and only moderate further contraction of the field. Treatment consisted of eserine salicylate, pilocarpin muriate, and a carefully regulated regime. In July, 1913, patient went to Los Angeles and was not seen again until January 16, 1914. On her own initiative she had abandoned local treatment since August. Right: +1, vision 6/10. Left, blind. Several weeks ago the left eye began to be painful and presented all the signs of a subacute attack of glaucoma. R.T. 35 mm. Left tension 72 mm. Hg. Bl. pr. 195 mm. Hg. Urinalysis showed sugar. On Jan. 20th left eye was trephined according to Elliot's method. The usual conjunctival flap was laid down over the cornea which was split with some difficulty. The 2 mm. trephine, which proved to be rather dull, finally cut through the sclero-cornea, the division of the deeper layers being accomplished with some difficulty. There was no immediate prolapse of the iris, but on lifting up the plaque with forceps a small peripheral prolapse took place. This was excised and an attempt was made to wash the iris into position with the irrigator. Almost immediately after the peripheral iridectomy there was an appearance of blood in the anterior chamber. It was therefore impossible to determine whether the irrigation had washed the iris back into position. The conjunctival flap was

*Read before Ophthalmic Section, St. Louis Medical Society, May 6, 1914.

replaced and one suture inserted near the apex. After the operation the eyeball felt very hard, in fact, if anything, tension was higher than before, so that I immediately suspected not only a hæmorrhage from the iris but a deep one as well. The patient experienced a great deal of pain for the first four or five days. The blood in the anterior chamber slowly resorbed, revealing the fact that the iris was adherent at several points to the anterior capsule of the lens. I hesitated to use a mydriatic in view of the increased tension, but did so, nevertheless, feeling that I must endeavor to rupture the synechiæ if possible. The patient made a very tedious recovery, and when she left the hospital a month later the eye was still very red and irritable. It was then observed that the lens was becoming opaque. In the meantime tension, which at first was decidedly high, had gradually dropped to normal, but there did not appear to be any filtration through the sclero-corneal opening. On March 10th I noticed a slight hypopyon, which on the following day had increased to one-fourth the height of the chamber. No evidence of infection at site of trephining. The condition went from bad to worse, and on the 13th chemosis and increased pain indicated an impending panophthalmitis. Removal of the globe was therefore advised and performed the same afternoon.

I cannot blame myself with any special clumsiness in the performance of the trephining, although no doubt the technique would have been smoother had the trephine been sharper. It is possible that, as indicated by the specimen, the trephine blade came in contact with the lens periphery, thereby leading to the development of a traumatic cataract.

Microscopical Findings.—The bisected eye macroscopically showed a cataractous lens displaced upwards impinging on the trephined area. The iris was pressed against the cornea, no anterior chamber being present. The iris tissue prolapsed into the trephine opening was attenuated. The vitreous was filled with a grumous mass, the anterior part showing a purulent character, the posterior bloody. There had evidently been a large deep intraocular hæmorrhage. Microscopically the prolapsed iris was represented chiefly by its pigment layer, the stroma having atrophied. The capsule of the lens was ruptured at its superior aspect and the corresponding part of the lens substance was infiltrated with round cells. Other portions of the lens showed areas of round cell infiltration lying in layers between the lens substance. The hiatus in the lens capsule must have

been brought about by the trephine. The trephine opening was filled with connective tissue, round cell exudate, blood, iris pigment and epithelium, the latter a downgrowth from the bulbar conjunctiva. In some sections the epithelium appeared as teat-like prolongations, in others as islands or plugs of solid epithelium. Anterior and posterior to the iris tissue outside the operative area were small collections of red blood corpuscles. Between the anterior lens capsule and the iris the space was filled with an aggregation of round cells. In some areas the pigment layer of the iris was separated from the stroma by hæmorrhage. The ciliary body in the region of the trephine opening was densely packed with leucocytes. Good sections of the optic nerve were not obtained; those we had showed the optic nerve cup filled with exudate. The lens capsule where ruptured was thrown into folds, the free ends reaching up to the opening in the sclerocornea. The abrupt endings of the lens capsule, Descemet's and Bowman's membrane, were apparent; the appearance of the cornea and Bowman's membrane gave one the impression that the splitting of the cornea was not deep or extensive. The microphotograph made by Dr. Alt shows very clearly the pathological conditions. (See Fig.)

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

[*Continued from July issue.*]

Dr. T. Lister Llewellyn dealt with the relation of miner's nystagmus to general nystagmus. In the former, the oscillation of the eyeballs was only one—though an important one—of the physical signs and symptoms. In miners the nystagmus produced marked subjective symptoms, while in the ordinary person with nystagmus he might not have noticed it. In miners the oscillation was of a rotary character, and was usually equally marked in both eyes. The nystagmus was increased on exertion, or by making the patient look up. It was usually brought to a standstill when the eyes were directed downwards. In general nystagmus the eye oscillation was generally lateral. The conditions producing nystagmus were those causing an inexact image to be formed on the retina; this was so in optic atrophy, marked errors of refraction, and corneal opacities. Albinism, with its lack of visual definition, was always associated with nystagmus. In dull illumination there was a tendency to use the peripheral portion of the retina. Arlt and Edridge-Green suggested that the movements had the object of bringing fresh portions of the retina into play. The miner in his work not only found great dullness, but almost a complete absence of color-relief. In the better lighted mines there were but few cases of nystagmus. He related some very interesting observations on the lighting power of reflections from ordinary walls, which was practically absent from the face of the coal. Moreover, to be out of the way of the pick, the lamp was often six feet or more from the face of the coal, and the available light was often not more than one-third of a candle-power, and it fell on a substanace capable of absorbing 86 per cent. of the rays. Safety-lamp pits were hot-beds of the disease. Of 900 consecutive cases of miners' nystagmus, 870 had worked with safety lamps, and 30 with candles, and 20 of the latter had at some time worked with safety-lamps. He had noticed that several of the most severe cases of miner's nystagmus had fair hair and light-colored eyes. He did not agree with Snell that miner's nystagmus was due to the strain produced by the unnatural position of head and eyes while holing; the man really looked straight at the spot to which

he directed his pick. Moreover, working in an unnatural position in a good light did not cause the disease. These patients complained of loss of sight, especially at night time, of headache, giddiness, and intolerance of light, Marked cases caused mental depression, and there might be tremor of eyelids, eyebrows, and even of the shoulders. The ultimate cause of the condition was want of co-ordination in the mid-brain ocular centre of Gowers, governing the associated movements of the eyes.

Dr. Dan McKenzie expressed agreement with the remarks of Dr. Llewellyn, as he found, while practicing in a Scottish mining district, that there were very few cases of nystagmus among the miners, and they used naked light, hence the illumination was superior to that given by the safety-lamp. He proceeded to deal with the subject of vestibular nystagmus. He agreed that the movement of the endolymph in the semi-circular canal was never a steady round-and-round circulation. It was a wave-motion. He suggested that usually the rise or fall in endolymphatic pressure in the ampulla was quickly relieved by local excess of fluid passing into the finer portion of the canal, and so round its undilated end, and this rapid equalization of pressure prevented undue stimulation of the end-organ. But when there was sustained pressure, as in continued rotation, the relief could not be brought about sufficiently rapidly, and excessive stimulation of the nerve ending would ensue, causing nystagmus and vertigo. With regard to spontaneous nystagmus of the labyrinth storm, the direction of this nystagmus should not be taken as the faithful guide as to which was the affected labyrinth, or to distinguish acute labyrinthitis from cerebellar abscess. He urged that the vestibular tests should be employed in all cases of mild or severe perceptive deafness, as this was useful for diagnosis and prognosis. He gave particulars of 36 cases, and drew the lessons from them.

Mr. R. J. Coulter (Newport) endorsed the views put forth by Dr. Llewellyn, and agreed that there was a neurosis as well as the oscillation of the eyes in subjects of miner's nystagmus. The idea that it was due to gases in the mine was quite given up. He exhibited a safety-lamp which had been used eight hours, one not yet used, and an electric miner's lamp, and narrated a case in which a miner, about to give up work on account of nystagmus, was provided with an electric lamp and was still working, some two months later.

Mr. N. Bishop Harman analyzed his results in the case of a series of 1,100 blind children under 16 years of age. Of this number 289 had nystagmus, and he classified them into groups, according to the ocular conditions present.

RESUMED DISCUSSION ON NYSTAGMUS.

The third meeting of the Section of Neurology, Ophthalmology and Otology was held on Wednesday, March 11th, to conclude the debate on Nystagmus. The chair was occupied by the President of the Section of Otology, Mr. Richard Lake.

Dr. Wilfred Harris said nystagmus should not be assumed to exist unless the lateral movements were persistent and ryhthmical during the test; the observer should also determine whether the nystagmus was a symptom of cerebro-spinal disease, or was of ocular origin. Cases which did not belong to either of these groups, such as head nodding, should also be recognized, and in the last-named form usually only one eye was affected. If, in early infancy, macular development was interfered with, such as by anterior polar cataract, so that there was not a clear image on the fovea, the cerebral co-ordination was not brought into play to keep the eye rigid, hence there were constant oscillatory movements. Ocular nystagmus might be said to be due to disease of the afferent path concerned with the reflex for fixation of the eyeballs. Occasionally in adults nystagmus might be due to defect of vision, and it might be uniocular. In nystagmus of central origin, the symptom was brought out especially on deviation of the eyes laterally or upwards, and was not apparent on fixation in the median line. Most intense nystagmus was occasionally set up by a tumor of the cerebrum, especially if the optic thalmus were involved by it. He mentioned cases of this, and recalled that Gowers made the same observation. The value of nystagmus for cerebral localization was not great, but it was usually suggestive of cerebellar disease. The most intense nystagmus might be an accompaniment of sub-tentorial disease.

Dr. Abrahams explained the modus operandi followed by him in obtaining cinematographic records of nystagmoid movements. He said the human eye was a very capable micrometer, and was capable of appreciating a movement which the camera did not reveal. Some of the movements photographed were less than 1/10th of a millimetre, and pictures were taken at the rate of 25 to 30 per second. Miner's nystagmus was too fine to photograph.

Mr. O'Malley dealt with the two great types of nystagmus, ocular and vestibular; and exhibited tables of useful sub-classifications, with suggestions as to ætiology.

Mr. Harold Grimsdale spoke of his experiences with cases at the Royal Normal Colleges for the Blind. Half the cases of nystagmus there had had ophthalmia neonatorum; and there were a large number of cases in which the nystagmus followed an accident to the cornea. Up to the age of 5, any severe disturbance of the cornea seemed to be followed by nystagmus. But the blind Principal, who lost his sight at the age of 4, following measles, showed no nystagmus. It was said that nystagmus never occurred in blind children, but he quoted a case to the contrary; the patient, a child, later recovered a fair degree of vision, and the presence of the nystagmus led him to hope that that might be so.

Mr. Cridland dealt with the question of the restriction of the fields of vision for red, blue and white in subjects of miners' nystagmus; this could be observed in the early stage and the improving stage of the condition. He possessed some 70 charts to illustrate the fact that in practically all cases contraction existed for red, blue, and white, but it was of the concentric type, and more or less symmetrical in shape. Occasionally there was an interlacing of the three fields. The restriction might persist even months after both subjective and objective signs had disappeared. Most of the cases showed blepharospasm, neck twitching, etc. The changes in the fields were akin to those seen in functional disease, and that lent support to the view that miners' nystagmus was a nervous condition.

Mr. Angus Macnab spoke of the relative importance of the rods and cones in different degrees of illumination. With light reduction the rods became the more important until the threshold of stimulation of the cones was passed. In the macula there were only cones; no rods, and after an eye had been subjected to low illumination, it gradually became adapted to its environment, and passed into a condition of dark adaption. Miners' nystagmus was noticed to be most prevalent where the coal was most absorbent of the little light there was; and the fixation of the subjects was in a state of very unstable equilibrium. The concentration of the miner on his blows also helped, in these circumstances, to produce the neurosis. He thought the influence of refractive error in the causation of nystagmus must be very small, though errors of muscle-balance might have

some weight. It would be interesting to ascertain what proportion of affected miners suffered from heterophoria.

Mr. Layton said there were great differences of opinion as to the value of vestibular nerve tests, including nystagmus, in the diagnosis of nerve diseases. He raised the question as to how much of failure to correctly perform co-ordinate muscle movements was due to withdrawal of cerebral control, and how much to defect of the vestibular nerve. He was convinced that in a certain number of cases, vestibular reaction when correlated with evidence obtained from other sources would enable one to clinch a diagnosis, or detect a gross lesion which otherwise would seem equivocal. He thought every neurolgist should learn to do these tests, or send their patients to otologists who could do so.

Dr. Rugg Gunn spoke of nystagmus as it affects albinos. In diseases of the retina associated with degeneration of the rods, there was the converse condition to night-blindness. An eye in that condition looking at the spectrum of sunlight, found the red end shorten and disappear, while its broadest portion appeared to move towards the violet end. It occurred to him that if in the albino the cones were found to be functionless, this absence of function in the fixation point was a sufficient cause for the nystagmus, and also, perhaps, for the intense photophobia found. Such a person would be dark-adapted. He described the case of an albino, one of nine observed, in which this was so.

Mr. G. H. Jenkins spoke of labyrinthine nystagmus in relation to various canals, and Mr. Parsons asked whether the albino described by Mr. Rugg Gunn was totally color-blind, because such persons showed the characteristics described.

Mr. Holmes Spicer, Dr. James Taylor and Mr. Sydney Scott replied, and the President suggested that perhaps a Committee of representatives of the three Sections might present definite conclusions from the various points of view.

ROYAL SOCIETY OF MEDICINE.

Section of Ophthalmology.

The usual meeting of this Section was held on Wednesday, May 6th, under the presidency of Sir Anderson Critchett, Bt., C.V.O.

Mr. Basil Lang showed a stereoscopic X-ray photograph of a case of traumatic enophthalmos; also a bottle specimen showing an early stage in intra-ocular suppuration.

Mr. Bookliss showed a congenital cataract, probably of the Coppock type.

Mr. R. Afflect Greeves read a paper entitled "Pathological Observations on the Filtration Angle in some Glaucoma cases." He spoke of glaucoma cases in which there was no closure of the filtration angle by a peripheral anterior synechia. The cases described in the paper resolved themselves into three groups. In the first were cases in which an iridocyclitis was, or had been, present. He described the invasion of the spaces of Fontana by granulation tissue containing capillary vessels, this tissue ultimately forming a solid mass of scar tissue, with which the pectinate ligament became incorporated. In the second group the tissues of the pectinate ligament were unaltered, but the spaces were blocked by large swollen cells, apparently of a phagocytic nature. In the third group the spaces of Fontana were open, but simple retinal detachment was present. In these latter cases the author suggested the rise of tension and the retinal detachment were due to the same cause, namely, an alteration in the composition of the intra-ocular fluid. Mr. Greeves also commented on secondary glaucoma with intra-ocular growth, and said he thought that in some cases an inflammatory element might be present. Microphotographs illustrated the paper, shown by the epidiascope.

Lieut.-Col. Herbert, I.M.S., read a paper on "The Ideal Glaucoma Incision." He said the section most suitable for the relief of glaucoma was a limited sub-conjunctival incision in the transverse vertical plane, a millimetre behind the limbus, the conjunctiva at this point being only loosely attached. A sufficiently near approach to this section could be obtained by puncture and counter-puncture with a very narrow tapering knife. Though sufficiently peripheral superficially to facilitate diffusion of aqueous backward under the conjunctiva, it reached the deep

surface of the cornea well in front of the root of the iris. Although making only a limited opening into the anterior chamber, the incision was superficially long, so widening the area of diffusion. Thus the tendency to localize vesicular change from filtration through the conjunctiva was reduced to a minimum. It was this change which had been mainly responsible for the late infections reported after trephining. Permanent filtration through this incision was secured in chronic glaucoma if the wound were kept open 24 hours. One method of doing this was to fix a gilded metal rod by sutures so that it lay in the incision though upon the conjunctiva, depressing the latter into the scleral groove. The method had the advantage of never emptying the anterior chamber, and during the operation there was only slight leakage. The operation, therefore, seemed to be one of the safest imaginable. Apart from the danger of late infection being lessened, there was less risk of intra-ocular hæmorrhage, and interference was reduced to the minimum. Ordinarily there was no need to interfere with the iris. The details still required to be fully worked out. It was desirable to avoid all unnecessary displacement of conjunctiva, which tended to localize filtration, and in the second place, it was necessary to provide sufficiently free leakage of aqueous in congestive and absolute glaucomas.

Mr. N. Bishop Harman submitted a paper on "A variable flap operation for chronic glaucoma." He devised the operation so as to allow the surgeon some latitude in the grading of the effects intended to be produced. Most of the methods now used were very rigid, the same was done for every kind of eye and every texture of sclera, whether thin or soft, or tough and gristly. After initial scleral section with the keratome, the author's modified twin scissors were used to cut a cornea scleral flap. The blades of the scissors had been so modified that they cut a U-shaped piece free, except for a narrow stalk of attachment to the cornea. This flap was freely moveable; the ordinary tension of the eye lifted it above the general level of the sclera. It was so mobile that it could be twisted over on itself; then it was found to lift the conjunctiva, and form a sort of inclusion tissue keeping open the scleral fistula. If the sclera was unusually tough, the flap could be removed with the touch of the knife. He favored the operation as securing the desired variation, and the twisting of the flap in particular promised to be very effective.

Mr. W. G. Laws read a paper entitled "Herbert's small-flap operation for Glaucoma." He was inclined to return to the original type of operation, and make lateral cuts with the knife, for scissors must crush and injure the tissues before dividing them, and in glaucomatous eyes the tissue was already of lowered vitality. For that reason he did not apply antiseptics to the conjunctival sac, nor even douche it before operating; he simply cleansed the edges of the lids with 1 in 3,000 perchloride. Out of 140 cases, he had had intra-ocular hæmorrhage in only three at the time of the operation, and these he described. He did not believe in one form of operation for all glaucoma cases, particularly where the anterior chamber was shallow.

Mr. A. L. Whitehead (Leeds) in discussing the papers, pointed out that after the glaucoma operation, fistulous tracts were set up from the anterior chamber towards the spaces of Fontana, lined with epithelium which was probably derived from the anterior chamber. When the operation failed, it seemed to be due to the occurrence of a new fibrous tissue formation, which closed the operation wound, whatever the operator did. He narrated some cases bearing out his contention.

OCULAR DISEASE ASSOCIATED WITH PYORRHŒA ALVEOLARIS.

S. G. Tibbles (*Brit. Med. Jour.*, Apr. 4, 1914) reports two cases in patients of eye conditions associated with pyorrhœa alveolaris. The first patient had vitreous opacities and evidences of a recent choroiditis. The mouth was in bad condition, the gums very unhealthy, teeth carious and broken down. No history of lues. Attention to the mouth was ordered. Mercury and kali iodidi given internally. In two months the vitreous opacities had cleared up and the choroiditis was better. The second patient had irido-cyclitis O.D., keratitis punctata, vitreous opacities and a beginning choroiditis. The mouth showed both gums and teeth to be in a most unhealthy state. Pus oozed from the sockets of the teeth, which were practically all carious. The general condition of the patient was bad. As she had only the one eye to depend upon, treatment was urgent. All the teeth were pulled and a mouth wash given. The eye condition began to improve and two months later the eye was perfectly quiet and treatment was stopped. Health improved and a gain of six pounds in weight was noted.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Annual Congress.

The Annual Congress of the Ophthalmological Society was held at the rooms of the Royal Society of Medicine, Wimpole Street, on Thursday, Friday, and Saturday, April 23-25th, while a clinical meeting was held at the Central London Ophthalmic Hospital, Judd Street, W.C., on Friday afternoon.

The Chair was occupied by Mr. F. Richardson Cross, of Clifton, Bristol, and among the distinguished visitors were Professor Uhthoff, of Breslau, Professor Straub, and Dr. Landolt, of Paris.

The President, in the course of a short introductory address, reminded members of the distinguished work of his predecessors in the Chair—Bowman, Hutchinson, Hulke, Hughlings Jackson, Argyll-Robertson, Berry, Sir Henry Swanzy, David Little, Priestley Smith, Nettleship, Tweedy and Lawford—and expressed congratulation on behalf of the Society to the Royal Society of Medicine on the success achieved by the Section of Ophthalmology. He referred to his investigations on the question of factory lighting, undertaken at the request of the Royal Society of Surgeons, and thanked members for the help they had given him on the subject. Most of the replies, however, from members who practiced in industrial localities, showed that there were few ailments which could be attributed to the insufficient or bad lighting of factories; but the inquiry did not include such special work as glass-making, or working on red hot or white hot conditions of metal, testing arc lamps, etc. Any injury done by excessive artificial lighting seemed to be attributable to the ultra-violet rays, as in the case of snow blindness; but the wearing of any glasses largely protected the eyes from the ultra-violet rays. The negative results of this inquiry did not lessen the necessity for aiming at a perfect form of lighting, which was an economic question, concerning not only the best results of work, but the hygiene of vision. There still remained much to be learnt as to the causation and treatment of eye diseases. All kinds of abnormal conditions of blood and system generally might set up inflammation of the intraocular bloodvessels, such as iritis, uveitis, episcleritis, retinitis, etc. He referred to the suggestion of Mr. Basil Hughes that instead of

rheumatoid iritis the term "metastatic iritis" should be used. It was very necessary to determine the ætiological cause of the condition seen, for then measures could be taken to increase the patient's resistance to the particular organism, and of course any focus of disease must be energetically treated. He proceeded to speak of the selection shown by certain bacteria for particular localities; and said there was reason to believe that bacteria flourishing in their own particular locality might produce different strains showing a selection for other tissues. The view that there were evolutionary developments of bacteria seemed well justified. He also referred to the value of diphtheria antitoxin and the various hormones in ophthalmic work, as also the serum therapy which was so well initiated by Sir Almroth Wright. He spoke of the gonococcus being a most widspread cause of infectious diseases, and pointed out that the organism might remain latent in the body for years. He referred to the work of Carl Browning showing the close relationship between syphilis and interstitial keratitis, and primary optic atrophy, general paralysis of the insane, and locomotor ataxy, while half of the cases of iritis and one-fourth of the cases of choroiditis were shown to be syphilitic. The good effects of salvarsan and neo-salvarsan in eye disease, he said, were very marked.

Dealing with the history of the Ophthalmological Society, the President reminded members that in 1880 a committee was appointed to consider defects of sight in relation to the public safety, with authority to communicate thereupon with the Government on the part of the Society if thought fit. In the following year an International Committee, 14 nations being represented, was appointed "to deliberate concerning the tests of vision and color sense most applicable to persons employed in working or observing signals by land or sea when the lives of others are involved." In the second volume of the Society's transactions appear the resolutions arrived at, indicating how unsatisfactory the matter was at that time. If the advice tendered 30 years ago had been taken advantage of, many disasters would have been prevented. The Society also took an important step in 1884 in connection with the prevention of blindness from ophthalmia neonatorum, and a special committee appointed brought forward certain resolutions, which were adopted. But the Local Government Board declined to act on the suggestion that printed instructions as to the dangers should be handed to each person registering a birth, and despite several attempts, it

has not yet been possible to bring this about, notwithstanding the large number of cases of blindness due to this cause. But quite recently, descretion was given to Town Councils and County Councils to make the disease notifiable if they thought fit, and now ophthalmia in infants had become notifiable. It was, said the President, terrible to reflect on the number of people whose sight might have been saved if adequate measures had been taken so long ago.

Mr. W. H. H. Jessop read a paper entitled "The prognosis in incipient opacities of the lens."

Sir Anderson Critchett, Bart., expressed his agreement with Mr. Jessops's remarks and related the case of a clergyman aged 48, who, when he consulted a young oculist, was told he had cataract, and so nervous was he in consequence that he insisted on presenting himself for examination every few months, fearing that he would be losing his sight. But his sight continued good, except for a slowly progressing presbyopia, until he was 86.

Professor Landolt, Paris, agreed that cases such as those described by Mr. Jessop were often met with, and he thought the term cataract should be restricted to cases in which there was serious impairment of vision which finally required removal of the lens.

Mr. J. B. Story, Dublin, also expressed agreement, and suggested that the term cataract should not be used when, in the opinion of the observer, the condition was not progressive.

Mr. Leslie Paton described cases similar to those related by the author, and Dr. G. F. Alexander thought that the fine spicules often seen in the eyes of young people were congenital and had persisted throughout life.

Mr. Johnson Taylor (Norwich) also described such a case in which he was able to prevent a fruitless operation for a condition which was not progressive nor detrimental to the sight.

Dr. Geo. Mackay (Edinburgh), Mr. Rowan (Glasgow), Mr. C. Wray (Croydon), also discussed the paper, and Mr. Jessop replied.

Mr. Bishop Harman (London) read a paper entitled "The appearance of Pigment in the Iris of the Child." The observations were made on white children, the offspring of a blue-eyed, fair-haired father, and a brown-eyed, dark-haired mother. At birth in each case the irides were of the usual dull slatey blue color, the iris tissues were obscured as though coated in some

smooth fine textured material. Clearing of the iris stroma was noted from the third to the sixth week of life. Two children developed blue eyes, one blue with the suggestion of violet due to rims of finer darker stroma at the margins. The other blue became bright and cold in tint owing to a marked thickening of the stroma in the intermediate zone. Two children developed brown irides. The first sign of brown pigment was noted at the sixth week. The pigment was in broad irregular patches extending from the basal margin; it looked just as though the iris had been touched with brown ink which was soaking through to the surface, and towards the pupillary border.

The development was earliest in the temporal half of the iris. The patches extended and fused until the whole was brown. The tint became full and pure in one child; in the other there remained at the age of two some suggestion of bluish or greenish tint at the depth of the crypts of the iris. In none of these cases was there any of the fine scattered pigment that is so common a feature of the hazel and dirty blue irides, which forms an irregular ring about the pupillary margin. From a few observations it was thought that this surface pigment spread from the pupillary margin at a later date, and from a secondary pigmentation.

Mr. R. A. Greeves read a paper on two cases of microphthalmia, and demonstrated the sections by means of the epidiascope.

Dr. Gordon Holmes and Mr. R. A. Greeves read a paper on "Flat Sarcoma of the Choroid, with multiple metastases." It was a case in which the trouble commenced with external rectus palsy, and later there was severe pain in the right forehead, and examination revealed considerable sensory loss in the distribution of the first division of the right trigeminal nerve. Still later there was complete loss of tactile sensibility, and partial palsy of all external muscles innervated by the right oculomotor nerve. The pupils, however, continued to react well to light, but subsequently marked optic neuritis developed. Death occurred 5½ years after the commencement of the symptoms.

Mr. Leslie Paton discussed the case.

Mr. Leslie Paton read a paper on "Papillœdema in Disseminated Sclerosis." The author found that in 100 cases, five showed evidence of past neuritis. In one case 18 months after the optic neuritis had been present in one eye there were normal fundi without atrophy and with normal visual fields, vision being 6/9 in one eye and 6/6 in the other. He related a number of cases supporting his thesis.

Lieut.-Col. R. H. Elliot read a communication on "Dressings and Antiseptic Methods in Ocular Operation." The paper was concerned with attention to minute details to ensure scrupulous cleanliness in operations, and incidentally the author criticized some thoughtless procedures which he had seen in some clinics. Referring to the recommendation of Col. Herbert for irrigation of the conjunctiva, with 1 in 3,000 perchloride, he said that since 1907 he (Col. Elliot) had not had one case of post-operative panophthalmitis.

Professor Landolt (Paris), in discussing the paper, expressed the opinion that boiling cutting instruments spoilt the cutting edge, an important matter seeing that a clean-cut wound was very much more satisfactory than one which was not made with a very sharp instrument. He therefore used and recommended dry heat, viz., up to 150 F., keeping the instrument in that for 20 minutes. He believed he had never had a case of infection from instruments. His practice was, when using atropine, to use a fresh ampulla each time. He objected to an irrigator.

Mr. W. H. Jessop referred to the danger of using long India-rubber tubes in connection with operations; several which were bacteriologically examined at a large hospital were found to be teeming with micro-organisms.

Professor Straub pointed out that most of the infections at operations arose from the spread of organisms which were already resident in the eye. His practice was to carry out the sterilizing and cleansing procedure on the patient for three days before operating.

Mr. C. Wray read a paper on "The Treating of Dislocated Lens." He said he did not consider needling was a satisfactory form of treatment for dislocated lens. If the lens were very much displaced, iridectomy might be the right thing to do, but he did not think it was generally sufficiently displaced to justify that procedure. If the natural tendency of the lens was to become dislocated, he did not hesitate to do couching.

The paper was discussed by Prof. Landolt, Mr. J. B. Story, Mr. Priestly Smith, Lieut.-Col. Elliot, Mr. Rowan, Prof. Straub, and Mr. Gray Clegg.

Friday morning was devoted to the subject of "Post-operative complications of cataract extractions." The discussion was opened by Mr. Treacher Collins, and he treated it chiefly from the pathological point of view. He first of all called attention to the difference noticed in the healing of extraction wounds

after the different forms of incision made by different operators, and he described how some incisions healed much better than others. He greatly favored the incision which aimed at the cutting of a conjunctival flap. If the wound did not heal readily it was possible for a down growth of epithelium to take place, and this might spread over the whole of the anterior chamber, and be the cause of blocking of the angles of the anterior chamber, and thus of causing a condition of glaucoma. He discussed the effect of delayed union of the posterior lip of the wound, and the cause of striated opacities of the cornea after extraction. Prolapse of the iris causing a bulging cystoid scar sometimes led to a late suppurative condition of the uveal tract which might occur months or even years after the healing of the wound. Astigmatism varied enormously in amount after extraction, and largely depended on the healing of the wound and the way in which the flap was in apposition. Suppurative inflammation of the cornea was most often caused by the pneumococcus, but the frequency of this had been greatly diminished by aseptic precautions. Thus in a series of Monfield's cases published in 1876 the percentage of eyes lost from this cause was 6.2. In another series published in 1894 it was 1.7, and in Mr. Collins' own cases done between 1900 and 1912 it was 1.15 per cent. No sterilization of instruments was done at the Royal London Ophthalmic Hospital previous to 1883. He advocated the use of the galvano-cautery in such cases, and he had also seen good results follow the use of vaccines, but as other local treatment was always carried out it was difficult to say how much good really resulted from the injections. In some cases posterior synechiæ developed in quite quiet eyes, and these he did not look upon as being septic, in like manner "keratitis punctata," which was certainly non-septic, could often be found in cases running a normal course if these dots were really looked for. He thought it quite a fallacy to think that the mere presence of soft lens matter in the anterior chamber was capable of producing iritis, but when it was mixed with aqueous it certainly formed a very good nutrient medium for the growth of organisms if any were allowed to be present. With regard to the development of sympathetic ophthalmitis, he had seen several cases which had greatly benefited by the use of salvarsan, and he also alluded to the information to be derived in dangerous cases by having a blood count done. He discussed in detail the way in which glaucoma was produced after an extraction or a needling

of capsule and the ways of treating it. He finally dealt with expulsive hæmorrhage, detachment of the choroid, opaque membranes, vitreous opacities and detachment of the retina.

Lieut.-Col. H. Herbert dealt with the subject from the clinical side. He said that the most serious after-complication of cataract extraction was that due to infection. He strongly advocated the very thorough irrigation of the conjunctiva with perchloride of mercury, and gave statistics showing that in India suppuration became all but unknown after this was carried out in a thorough and systematic manner. The usual strength he used was 1 in 3,000. This certainly had the drawback that it did irritate the conjunctiva, and subsequently led to a further development of micro-organisms than would otherwise have been the case, but by this time the wound had healed, but it should be taken into consideration if it were contemplated to do a further operation within the first two weeks, such as a very early needling. He was strongly in favor of making a large conjunctival flap with the original incision for the extraction.

Sir Anderson Critchett, Bart., considered that Mr. Treacher Collins had placed upon a firm pathological ground questions upon which the profession was previously in a condition of uncertainty. He described what he considered to be the best procedure in complicated cases of cataract where the pupils had been drawn up into the wound, or where there was a dense capsular membrane. No class of case required greater experience, and he discouraged the slightest empiricism, advocating eclecticism, adopting the procedure found suitable to each particular case.

Mr. S. H. Browning read an interesting communication on the subject, in which he said that out of hundreds of cases examined at Moorfield's Hospital before the cataract operations, only one case was pronounced bacteriologically clean which subsequently became infected after operation. Three of the 14 unsatisfactory cases during the last four years had been in eyes which had been reported unfit for operation, but were nevertheless operated upon. All these eyes were lost. Some of the chronic cases of low virulence responded to vaccine treatment: some yielded to salvarsan or neosalvarsan. He suggested that causes for sepsis should be searched for further afield than in the eye itself, viz., in the gums, nose, throat, etc. Many of the infections he had found to be endogenous, not arising in the conjunctival or lacrimal sac. The practice of bandaging the eye

for 24 hours previous to operation and deciding whether the eye was fit for operation by the comparative absence of secretion on the bandage he considered to be bad from a bacteriological point of view, for in several cases examined carefully the organisms present had increased during the time the bandage was in position, and some forms of virulent organisms were present after the bandaging which had not been detected before.

Mr. C. Killick described his results in 101 serial cases, one of which suppurated. During three years in his own practice he had had only three cases of suppuration after cataract extraction out of 1,000 cases. One eye in each of these three cases was restored to sight. He also described the varieties of after-cataract, and said he had had to needle 28 times in all his cases for capsular proliferation.

Mr. C. Worth spoke of hæmorrhage occurring into the anterior chamber five days after the operation, and he regarded that as peculiar to the operation with the conjunctival flap; he had not seen it where the incision had been corneal, and it probably occurred after some movement on the part of the patient, not necessarily a blow. This hæmorrhage retarded convalescence. He had adopted a conjunctival flap in all cases and kept the patient quietly in bed for a longer time than he considered necessary for the corneal incision. He also spoke of the accident of vitreous coming forward into the anterior chamber through the rupture of the hyaloid. At the time of the extraction he always divided the capsule straight across; he made no attempt at the V-shaped opening, so that in most of the cases there was an anterior capsule left in the line of the pupil.

Mr. A. W. Ormond read notes of two cases in which post-operative complications occurred after removal of lens. Both were endogenous infections.

Mr. J. B. Story (Dublin) said he had been able to assist some cases of wound infection by the application of the electro-cautery to the edges of the wound and by a sub-conjunctival injection of cyanide of mercury. He believed in the majority of cases of inflammation after cataract extraction it was an exogenous infection, and it had long been his practice before operation to make careful examination not only of the eye, but also of the nose and mouth. If there were many organisms, operation was deferred, and the patient submitted to a cleansing and fortifying treatment.

Mr. G. F. Alexander spoke of the great instruction he had

received from operating in Lieut.-Col. Elliot's clinique at Madras, and related some of the impressions he had derived from the wealth of material available therein.

Lieut.-Col. Elliot spoke in high praise of Mr. Collins' contribution to this subject, and declared that there was no ophthalmologist for whose work the younger workers in India had a more profound admiration than that of this authority. He also thanked him for the generous terms in which he had acknowledged Col. Herbert's valuable work in the same direction. He (the speaker) had himself worked hard for a number of years on the subject of post-operative astigmatism, and Mr. Collins' present paper had been most valuable to him. He supported Mr. Collins' remarks about the influence of traumatism on the appearance of post-operative opacities. Where there was a large lens which had to be delivered through a tight wound there was apt to be striated keratitis. For non-inflammatory secondary cataract he used two needles. For inflammatory secondary cataract he used the knife, and if that failed he opened the chamber. He did not cut the capsule, but cut the healthy iris.

Professor Landolt expressed his great satisfaction with the contributions of the openers, and said his experience had led him to the same conclusions. One of the most dreaded complications, apart from sepsis, was prolapse of the iris. To avoid this he always performed iridectomy with the cataract extraction, excising the iris widely, often in two cuts, so that after the section it retracted by its own elasticity. If part of the iris were entangled in the scar he would cauterize it with the galvano-cautery, afterwards covering with a flap of conjunctiva. He had always been sceptical as to the use of the preliminary bandaging. And he proceeded on the assumption that no conjunctival sac was free from pathogenic germs. Moreover, danger of infection persisted so long as the wound remained open. He pictured it as a race between the development of noxious germs and the closure of the wound. If the eye were tied up 24 hours before operation the development of these germs was favored and the patient's recovery handicapped. He did not agree with the use of strong antiseptics for cleansing purposes, though in conjunctivitis he would even use nitrate of silver. He showed his forceps for the purpose of dealing with secondary cataract.

Mr. G. Mackay (Edinburgh) asked whether some weaker preparation than 1 in 3,000 perchloride would not do. He had

given up strong solutions because of the frequency of posterior corneal opacities. His preparation of the patient consisted in regular douching of the conjunctiva with sterile saline or boric lotion. In this connection argyrol was also useful, employed two or three times a day.

Professor Uhthoff (Breslau) also described his methods and experiences in the operation, and was followed by Mr. Thomson Henderson.

Professor Straub spoke of the chronic inflammation which commenced in the second week after operation, and said he had not seen this occur when the toilet after the operation had been well and carefully done. He also detailed his method for preventing squeezing of the eye, this squeezing sometimes accounting for the loss of the eye.

The President said all realized that the essential necessity was the production of absolute local asepsis, or antisepsis, the most rigorous cleanliness of instruments, patient and person. Most of the cases of sepsis he regarded as exogenous, but there were cases of endogenous infection. Cases such as Mr. Ormond related he considered to be gouty, using that term in its generic sense. He referred to the possibility of sepsis from the teeth, and from metastatic inflammation. He related some cases. The openers of the discussion briefly replied.

On Friday afternoon a clinical meeting was held at the Central London Ophthalmic Hospital, when the following cases were demonstrated and discussed:

Mr. F. A. Juler: (1) Hyaline bodies on the optic disc. (2) Congenital ophthalmoplegia.

Mr. Leslie Paton: Congenital malformation of the disc.

Mr. M. S. Mayou: (1) ? Tuberculous mass in the optic nerve sheath. (2) ? Inflammatory or congenital mass around the nerve head.

Mr. Cecil Graham and Mr. Leslie Paton: Cases of West's operation for lacrimal obstruction.

Mr. Treacher Collins: Concussion injury with rupture extending across the optic disc.

Mr. C. Wray: (1) Colored drawing of the "rare cases of corneal disease" shown at the last meeting. (2) Two cases of ectopia lentis. (3) Case of intra-orbital neoplasm. (4) Lenticonus. (5) Case of 6 D. of hypermetropic astigmatism cured by the cautery. Vision 6/6.

Mr. Sydney Stephenson: Case of sympathetic ophthalmitis treated by six injections of neosalvarsan.

Mr. R. R. James: (1) Massive tubercle of the iris. (2) Crater-like hole at the disc, with macular changes.

Mr. G. Coats: Congenital partial paralysis of the oculo-motor nerve, with cyclical contraction and dilatation of the pupil.

Mr. G. Coats showed and described a case of congenital partial paralysis of the oculo-motor nerve, with cyclical contraction and dilatation of the pupil. The condition was observed in the left eye of a girl aged 10, and had been present since birth. The signs of oculo-motor paralysis were: partial ptosis, divergence, abolition of upward, and limitation of inward and downward movement. The cycle of pupillary phænomena consisted of a relatively rapid contraction, followed by a more gradual dilatation. The movements were not strictly rhythmical, and movement of the eye to the right, whether on convergence or conjugately, tended to induce contraction and render the phase of dilatation more intermittent and less complete; relaxation of the internal rectus had the opposite effect; but the play of the pupil continued even when the adducted or abducted position was continuously maintained. During contraction the pupil was immobile; during dilatation it responded to light and consensually. In ordinary circumstances the stage of miosis was accompanied by a contraction of the ciliary muscle and by slight raising of the lid. The eye was astigmatic and amblyopic, the other being slightly hypermetropic. Some 19 cases of this affection had been recorded, most of them in recent years. Characteristic of the group was a partial third nerve paralysis, usually, but not always congenital, and interrupted by periods of activity in the internal rectus, levator palpebræ, sphincter pupillæ, and ciliary muscle. The suggested explanation of Salus was stated and discussed—that during the repair of a lesion of the third nerve some of the axis cylinders, sprouting from the central end, made a kind of "false junction," and so connected a given nerve centre with a muscle or group of muscles not belonging to it. If, for instance, all the fibres which should go to the internal rectus were diverted to the sphincter, then an effort at adduction would result only in a contraction of the pupil, and a partial side tracking of these fibres would produce partial phænomena of the same nature. This hypothesis, however, did not readily explain why the false junction should invariably take place between the internal rectus fibres (occasionally *also* the inferior and superior and inferior rectus fibres) and the pupillary and levator fibres—why, for instance, the attempt to

look inwards was never associated with a movement upward of the globe? Something a little more haphazard might be expected in the case of nerve fibres finding their way at random through a mass of inflammatory material.

On Saturday morning Mr. Thomson Henderson demonstrated and described a pressure gauge which he had devised for measuring changes in the intraocular pressure instead of the digital pressure in order to test the intraocular tension.

Mr. C. B. Goulden read an instructive paper on "Optic neuritis and spinal myelitis, which will be published in full subsequently. The paper was discussed by Mr. J. B. Lawford, who described a case in 1884, and he remarked that the profession remained as ill informed as to the causation of the disease as 30 years ago. He hoped a similarly careful investigation of future cases would be made as that by Mr. Goulden.

Dr. Gordon Holmes related three cases of the condition, one of whom recovered completely after being as desperately ill as possible. In the cases which he had examined post-mortem the most extensive lesion was in the chiasma or in the optic nerve. There was considerable disintegration of nervous substance. Axis cylinders remained practically intact. The actual infecting agent was not yet known.

Mr. Brooksbank James read a paper on "Irido-sclerotomy in Glaucoma." Having referred to previous communications on the subject he described the operation he adopted. A large conjunctival flap was turned down well over the corneal margin consisting only of the superficial part of that structure. An incision was then made transversely close up to the reflected conjunctiva being about 1 mm. within the limbus. A second incision was commenced at one extremity of the first and diverging somewhat finished close to the other extremity and including about ½ or ¾ mm. of scleral tissue at this extremity of the incision. The anterior chamber was then opened by deepening the central portion of the first incision. After the aqueous had slowly escaped the incision was enlarged to its extremities. A repositor being used to free the flap from any deep attachments it (the flap) was separated through the length of the wound and turned outwards. A medium-sized iridectomy was then performed and the conjunctival flap was then replaced. He claimed for the operation that the conjunctival flap was a great safeguard, and was necessary to allow of filtration. The opening in the sclera was a chink instead of a hole, and facilitated the

escape of fluid all along the wound. The iridectomy was always satisfactory, and he had never known impaction of the iris tissue. The safety of the operation was due to the position of the incision, and to the fact that the aqueus escaped very slowly. Having compared the results of his operation with trephining, he far perferred the operation he had described for the permanent relief of tension. He showed some of his cases illustrating the method.

Dr. C. O. Hawthorne showed a number of perimeter charts taken from cases in which homonymous hemianopsia was the principal or only evidence of intracranial disease. In his first group he placed cases of cardio-vascular degeneration with or without renal disease, the hemianopsia here being due presumably to arterial obstruction or rupture. In a second group were described cases of homonymous hemianopsia occurring in young women free from all evidences of cardio-vascular or renal disease, but the subjects of anæmia or chlorosis; and in these cases it was argued that the hemianopsia was probably due to venous or sinus thrombosis within the skull. Rarely a similar condition develops in epilepsy, and here also it may be possible to hold that sustained arterial spasm may lead to capillary and venous thrombosis, which, occurring in the visual tract posterior to the optic commissure, would be sufficient to account for the homonymous hemianopsia.

The paper was discussed by Mr. Brooksbank James, Mr. Leighton Davies, Dr. G. F. Alexander, Prof. Landolt, Prof. Uhthoff, and the President, and Dr. Hawthorne replied.

Mr. M. S. Mayou read a communication entitled "Diseases of the Eye in Animals," and it was illustrated by a number of photographs.

Mr. J. Gray Clegg read a paper on "A Case of Senile Cataract with Two Nuclei." In 1904 Mr. Gray Clegg saw a male patient aged about 70, who was suffering from a senile cataract. The ordinary method of extraction with iridectomy was adopted. After rupturing the lens capsule with a cystotome, he expressed the lens, when a dark brown nucleus escaped, but on further stroking movements to clear away the cortex, a second nucleus presented itself, and was removed. The operation was completed, and nothing further worthy of note occurred. On examination one nucleus, which he took to be the anterior one, was exactly of plano-convex shape, but the other was in the form of a positive meniscus with a small elevation at the centre of the

concave surface. Each nucleus measured 5 mm. in diameter, and was hard, and dark brown in color. The formation of the two nuclei had probably begun at an early age—probably before 25, that being the time at which a nucleus was recognizable, but, of course, sclerosis of the inner central portion of the lens began much earlier.

Mr. Gray Clegg also read a commentary on "A case of death following open evisceration." The patient, T. F., male, when aged 47, was struck on February 27th, 1906, by a chipping of hot metal on the right eye. A few days later he was admitted to the hospital suffering from an extensive ulcus serpens with hypopyon. Useful sight was destroyed, but the eye became quiet with the formation of a dense leucoma, involving the whole of the front of the eye. Some years after, on October 2nd, 1913, he again attended at the hospital under his (Mr. Clegg's) care, with signs of early panophthalmitis, and four days later—*i.e.*, on October 6th—open evisceration was performed at his direction. On October 8th the patient became rambling in his speech, and very restless. The temperature was 99 F., pulse regular, but the breathing was rapid; there was no physical sign of pneumonia. It was considered advisable to remove him to a general hospital, where acute post-operative mania was diagnosed. He died the following day at 1:30 p.m. A post-mortem examination was made. There were no external signs of disease or injury except in the eviscerated globe, which was half full of thick gummy pus. There was no evidence of inflammation in the conjunctiva, cellular tissue of orbit or lids. The surface of both cerebral hemispheres was intensely injected, and covered with a thin layer of greenish yellow pus; these changes being marked on the frontal lobes. The optic nerve of the operated right side was considerably swollen, and showed many minute vessels on the surface. On cutting it across at the optic foramen a bead of pus exuded at once from the cut surface of the distal portion. There was no evidence that the pus had reached the brain through the sphenoidal fissure. The left optic nerve was normal. The whole of the base of the brain was bathed in thick pus; nothing abnormal was found inside the brain. There was no evidence of any ear disease, and the result of the examination was to show clearly that the infection had reached the meninges via the right optic nerve. In other respects the organs were those of a well-nourished, healthy male. He had had since November, 1909, 33 cases of complete purulent pan-

ophthalmitis due to all causes; open evisceration had been adopted in all of them, and in 27 a small hard lump had resulted, but in six the recovery was complicated by sloughing of the sclera which was noted at intervals varying from ten days to three weeks from the time of the operation. The operation of open evisceration for panophthalmitis had always been considered to be free from the risks incurred in enucleation.

Mr. Maddox described the use of a traction thread passed through the insertion of the superior rectus muscle to facilitate the toilet of the iris in intracapsular extraction of the lens, and showed specimens of Col. Smith's instruments which he had had made of the light metals, magnalium and aluminium. He also showed an improved form of his simpler pattern of axis finder for cylindrical lenses.

Mr. G. Coats reported a case in which, after a blow, the pigment epithelium and dilator had disappeared from a sector-shaped area about 6 mm. broad in the temporal half of the iris. On external examination the iris stroma in this area appeared to be almost normal, but on illumination with the ophthalmoscope light was transmitted through its interstices. With the trans-illuminator the translucency of the sector was almost complete, the appearance of a coloboma covered with a very delicate veil being simulated. Elsewhere the iris transmitted no light. Under a mydriatic the inner, upper and lower parts of the iris retracted perfectly, but the outer remained quite flaccid, the edge of the pupil forming a straight vertical line, and remaining in its former position. The pigmented margin was absent in the outer half of the pupil, present elsewhere. The color of the irides was a moderately deep, greenish blue. Vision 6/12 and J. 1. No changes in the deeper parts of the eye. The condition was of great rarity, but had been described by Gelpke, Pohlenz and Boerma, and was attributed either to driving back of the iris to such an extent as to produce an indirect rupture of its posterior, less elastic layers; to direct injury by a penetrating instrument thrust up between the iris and lens; or to rupture from behind, by levering or tilting forward of the lens against the posterior surface of the iris. The first of these seemed to be the most probable, the rupture resulting either from simple stretching, or from nipping of the iris between the cornea and lens. The second fails to explain cases in which there is a contusion but no perforation, and the third cases in which the lens is neither dislocated nor wounded. It had recently been asserted

by Rubel that the imperviousness of the iris to light was chiefly a function of the iris stroma, the pigment epithelium being relatively of little importance. This case, on the contrary, showed that when the pigment epithelium was absent in a lightly pigmented iris, the stroma presented scarcely any obstacle to the passage of the brilliant light of the trans-illuminator. The observation confirmed a statement by Fuchs that the depth of pigmentation in the epithelium was very variable, and that its amount was a most important factor in determining the translucency or otherwise of the iris.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. F. Hardy, M.D.,
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PRELIMINARY REPORT OF THE ACTION OF ETHYL HYDROCUPREINE IN ULCUS SERPENS.

That bête noir of ophthalmologists, ulcus serpens, for the relief of which many therapeutic measures have been tried with ill-success, is the subject of a short paper and case report by Alfred Wiener, of New York (*Medical Record,* January 17, 1914, Vol 85, No. 3). The therapeutic agent was ethyl hydrocupreine, a quinine derivative. This drug has been studied by Morgenroth in its effect upon mice infected with the pneumococcus. Morgenroth and his associates had proven that the chemotherapeutic influence which this drug has upon the pneumococcus, which is the organism responsible for ulcus serpens, is virtually specific. Reports have also been made by Goldschmidt and Schur. From the favorable reports emanating from Germany, Wiener was led to use the drug in a case coming under his care. He states that while he has but the one instance to report yet the result was so striking that he was led to make the preliminary report in the hope that other ophthalmologists would use it, and place their results upon record in order that conclusions as to its value may be definite. Briefly the case history was as follows: Patient 45 years old, seen on third day, ulcus O.D., intense pain photophobia epiphora, mucopurulent conjunctival secretion, ulcer progressive and sloughing, deep

infiltration of parenchyma, cornea hazy throughout and hypopyon present. Vision = hand movements. Patient was placed in a hospital and the eye bathed with a 1 per cent. solution of ethyl hydrocupreine for a half minute every hour. This was kept up for six hours the first day and twelve hours the second. Previous to using the drops the conjunctiva was cleansed and sac expressed. On the second day the hypopyon was gone and the cornea transparent, edges of ulcer clean and no progression. On the third day the cornea was practically normal in appearance except for a faint macula in the region of the ulcer. A culture showed the pneumococcus. On the seventh day the sac was removed, the eye was virtually well and the culture sterile.

HEREDITARY GLAUCOMA (SIMPLEX).

F. P. Calhoun, Atlanta, Ga. (*Jour. A. M. A.*, July 18, 1914) makes a report, with operative notes of three generations of one family. Heredity is recognized as a common factor in the causation of glaucoma, both of the inflammatory and non-inflammatory types. Calhoun states that a hereditary type of glaucoma simplex is exceptionally rare beyond the second generation and that he was able to find recorded only four other cases or families. In summarizing the reported cases of hereditary glaucoma simplex Calhoun says that:

1. "Anticipation" is the most prominent feature, as Lawford mentions. Hereditary glaucoma usually develops in adults, or at an age far remote from the usual period, and whenever a case of glaucoma simplex is recognized in one under the age of 30, interest should be aroused as to the hereditary tendency.

2. The smallness of the cornea and globe does play an important part; it, however, is not the sole cause, for two families of myopes have been reported. Unfortunately few corneas have been measured.

3. General diseases other than gout and rheumatism, mentioned by the older writers, have small part in the causation of this disease.

4. The liability to transmission by the two sexes is roughly equal. The male sex shows a greater liability to inheritance.

A study of the family reported by Calhoun revealed the fact that defective vision was discovered at an early age in all cases. The normal refraction of the eyes was emmetropic or slightly hypermetropic. After operations the corneal astigmatism fre-

quently changed to minus or mixed astigmatism. In five of the cases, thirteen operations were performed on nine eyes. In Calhoun's hands the iridectomy as performed for glaucoma, and the sclerectomy with iridectomy of Lagrange did not give the results which were finally obtained by the scleral trephine. As for the results in the five of the eight cases personally cared for by Calhoun, he states that it might reasonably be said that after atrophic change and cupping had taken place in the nerve, the operations have prolonged sight and possibly arrested in a measure early blindness; whereas in the early cases, without ophthalmoscopic nerve changes, with only a reduction of vision, elevation of tension and contracted fields as symptoms of the disease, the results are gratifying.

SCLERO-CORNEAL TREPHINING FOR GLAUCOMA.

W. R. Parker, of Detroit, (*Jour. A. M. A.*, July 18, 1914) presents a report of cases operated upon by Col. Elliot during his visit to the United States last fall. A number of tables are given classifying the types of glaucoma, the vision before and after, the tension before and after, those with and without iridectomy, the final result, etc. A total of 76 eyes operated upon in 61 patients are reported. This represents about half the number operated upon by Col. Elliot during his visit. Good results are stated to be 81.58 per cent.

Parker concludes that the average results obtained from the sclero-corneal trephining operation for relieving glaucoma are better in the non-inflammatory type than in the other forms of the disease. The results obtained when the operation was associated with a complete coloboma were better, as regards both the frequency of the occurrence of iritis and the effects on the tension, than when performed with a partial iridectomy or when the iris was left intact. The remote results may not be so good as those shown immediately after the operation. The number of cases recorded is not sufficiently large to permit of definite conclusions concerning the real value of the sclero-corneal trephining operation in relieving glaucoma.

It is a human trait to put the best foot foremost; it is a failing of many surgeons to forget to report any but good results. It would therefore be of great interest to know the outcome in the other half of the number of cases operated upon by Col. Elliot and not reported to Dr. Parker.